1997 Air Force Quality and Management Innovation Symposium

EMPOWERMENT IN ACTION
LOGISTICS NATURAL WORKING GROUP
165th Airlift Wing Savannah IAP, Georgia

Abstract

I. Organizational Approach
When the 165th Airlift Wing first began its Quality journey our people were told that they were "Empowered." After explaining what this new term meant, everyone embraced the concept wholeheartedly, for themselves. Understanding that it also meant supervisors would benefit from releasing some of their authority and trusting their employees took a bit longer. However, with a continuous quality education program and increasing trust in the process, we started to see more and more buy-in. The result was that when work center personnel saw where they could do something better, they formed natural working groups to examine the problem and solve it. These groups were made up of those who had the necessary skills and were motivated to accomplish the group's goal.

II. Execution
From 1995 until 1997 there were several improvement projects started and completed at the 165th AW. These projects included: (1) Aircraft Rail Lock Repair Procedure (2) Aircraft Air Conditioner Intake and Auxiliary Power Unit Exhaust Plugs (3) Sextant Reveal Replacement (4) Aircraft Heat Shield Bulkhead Replacement (5) Aircraft Circuit Breaker Identification Plate Replacement. Although these projects were worked in different workcenters there were several similarities. In each case, the goal was to eliminate waste and to save time and money. Each project had a team leader, however, some team members assisted on other project teams. But, perhaps the most important facet of these efforts was that everyone felt the freedom to attempt to make something better. Senior leadership contributed by providing support and authorizing the use of needed materials, supplies and equipment which insured success of the team.

III. Results
While the monetary savings aspect of these projects is impressive at $11,320.00 per aircraft, and a total savings exceeding $101,840.00, there were other positive results. For instance, an increase in trust and confidence has been demonstrated between supervisors and their employees. There was an improvement in the utilization of available skills, teaming skills were enhanced and buy-in was increased. Pride in the unit became more evident. Parts that previously had to be ordered, are now on hand. Overall, empowerment has proven successful at the 165th Airlift Wing and has been insured its place here.

THE INTEGRATED TEST TEAM PROCESS IMPROVEMENT TEAM
18th Flight Test Squadron, Hurlburt Field, Florida

Abstract

I. Organizational Approach

During a Strategic Planning off-site working group in June 1996, the 18th Flight Test Squadron identified the need to institutionalize a Test Team concept within the squadron. A "gap" existed in the squadron's testing process that hampered the effectiveness and efficiency of operations and reduced the quality of the products the squadron provided to Air Force Special Operations Command. The commander chartered a Process Improvement Team (PIT) to develop guidelines and procedures through the application of quality tools and techniques that would formalize and institutionalize the test process within the 18 FLTS. The **"Integrated Test Team"** (ITT) PIT first met in September 1996. On 16 January 1997, the Team Leader briefed the squadron's Quality Council on their accomplishments, recommending that the *Test Team Execution Checklist* and the *Test Director's Handbook* (products generated by their team), be implemented as the new process for conducting test operations in the Air Force Special Operations Command.

II. Execution

The main idea behind using an Integrated Test Team (ITT) for a test is that a test director can build a core team of experts which can more efficiently divide work and perform tasks towards a common goal. The ITT concept employs four "core" team members to plan and execute a test in six chronological phases: ITT; Research; Coordination; Test and Evaluation; Reporting; and Dissemination. The *ITT phase* is designed to emphasize the team building aspects of a test. The *Research phase* is designed to provide the guidelines for the initial information gathering stage. The *Test and Evaluation phase* consists of two major events: test flight(s) and analysis. Primarily, this phase concentrates the efforts around last minute coordination, assessing each flight, and coordinating subsequent flights. The *Test Reporting phase* addresses the importance of producing a well-written, technically accurate, and properly coordinated test report. The purpose of the *Dissemination phase* is to determine how to best use the information of the final reports and convert it into better equipment and tactics for special operations. Strategic planning showed that our squadron lacked the capability to inform, educate, and apply test results in a timely manner at the operator level.

III. Results

With the introduction of the *Test Team Execution Checklist* and the *Test Director's Handbook,* members of the 18 FLTS now have a single source for conducting test operations—"one-stop shopping" at its very best! In the past, we accepted new test orders with little framework on how to set about preparing for and conducting the test, as well as a guide for how long it should take. Now, for the first time in the unit's history, we have a management tool to help us determine our saturation level. The workload smoothed out within a month. Test Plan staffing time has been cut from months to days. Scheduling is now being accomplished proactively, with multiple test events being executed on single sorties. Overall, a huge success!

Parts Movement Power Team
22d Logistics Group, McConnell AFB KS

Abstract

I. Organizational Approach

The 22d Air Refueling Wing is one of America's three core KC-135 tanker wings. With a mission "to provide Global Reach by conducting air refueling and airlift where and when needed," this unit flies over 4,000 missions per year in support of our national interests. In February 1997, the Logistics Group commander determined that we were not effectively utilizing manpower and resources. An increasing operations tempo necessitated the streamlining of processes to ensure continued mission readiness. LG/CC took the power team approach to achieve maximum results in a minimum amount of time. LG/CC directed the teams to "make war on waste" in relation to the parts pickup and turn-in process. The commander gave the teams the authority to implement on-the-spot changes to policy and procedures. The only stipulations were: no manpower cuts, no expenditure of funds, and no shortcuts to safety.

II. Execution

The teams used value flow analysis, process mapping, flow charts, brainstorming, action item lists, the "Five Why's", the "Five S's," and spaghetti diagrams to identify the process, determine the baseline, make recommendations, and implement a solution. The teams targeted a 50% reduction of processing time, distance, man-hours, etc. from the baseline. The teams based improvement selection on the premise that too many man-hours were wasted within the parts movement processes throughout the group. The power team was broken into three separate events. The first event eliminated the non-value added steps in the delivery of property from the commercial carrier to the MICAP section. The second event eliminated excessive motion in parts movement to and from maintenance. The third event streamlined the evacuation of unserviceable parts from maintenance to the commercial carrier.

III. Results

The teams returned a total of 57.37 man-hours per day to the Logistics Group. These hours have been redirected to the maintenance and aircraft generation squadrons for training. The results also dramatically improved supply and transportation procedures. The wing has an accelerated means to provide fully mission capable KC-135R/T aircraft to the Global Reach mission. This impacts supply receiving and the transportation management office by not requiring personnel to stop all routine work just to process high priority assets; a disruption which caused rework. Maintenance no longer wastes significant motion and time picking up parts. Supply is no longer required to make multiple stops with assets. This reduces rework and frees up vehicle resources. Total saving to the wing was calculated at over $313,536 per year.

MK-19 SECURITY ENHANCEMENT TEAM
321st Security Police Squadron, Grand Forks AFB, ND

Abstract

I. Organizational Approach
Terrorism, both foreign sponsored and domestic, has increased substantially over the past three years. The bombings of the Olympic Park and the Oklahoma City federal building provide stark reminders that the threat is very real. The 321 Missile Group Commander, SPS Commander and squadron Quality Council, spurred by these events, data from local exercises and NAF/MAJCOM inspections, chartered a PAT to analyze key issues associated with missile field security. These issues involved the backup response force having difficulty arriving within established standards, initial response forces were at risk, and the MK-19 40mm Grenade Machine Gun (Fig A.1), a 40:1 force multiplier, arriving too late to be effective. The team was established based on the needs of the improvement opportunity and members were selected from each area having a role in missile field security. All members received PAT training during early team formation and attended team meetings regularly.

II. Execution
Security police survey results indicated that squadron personnel overwhelmingly believed the MK-19 should be part of the initial response force and deployed in the field daily—a sharp contrast to existing procedures. The team focused on four root causes that prevented the MK-19 from effectively contributing to missile field security: access to base, WSA, and armory; transportation; insufficient qualified personnel; and deficient employment procedures. After gathering data from other units, conducting several exercises and testing different procedures the team developed three action plans to guide solution implementation: Role Development, Physical Employment and Future Applications. To correct the root causes, the team imagineered a process without logistical drawbacks. Instead of using the MK-19 for backup force support, they recommended using it in an initial response force role (MFT) and centrally positioning it in the field on a 24 hour basis. The team compared Peacekeeper Armored Personnel Carriers, suburbans, and maintenance L-Vans. Weapon Set-Up Tests proved the L-Vans best fielded the weapon. The 321st Maintenance Squadron provided excess vehicles to effectively field the weapon in its new role. To qualify sufficient MK-19 gunners for the new employment role, the team qualified 9 gunners locally and obtained 20 formal training slots for FY97.

III. Results
The PAT transformed the MK-19 from a supplemental weapon to the centerpiece of our response force and redesigned LF recapture procedures around the weapon's new role. In so doing, it reduced the MK-19 deployment process from 19 to 5 steps and decreased MK-19 response times by 47 to 83 percent. In its new role, the MK-19 significantly improves LF recapture effectiveness by expediting a more potent force to the affected site. Factoring in the force multiplying effect of the MK-19, this equates to a 329 percent and 215 percent increase in security effectiveness at the RF and BAF standards respectively. In a survey, our key customers in operations enthusiastically endorsed the new employment concept. The AFSPC IG validated results by lauding MK-19 use as a program strength and crossfeeding the idea command-wide.

Color Us Rest—Lodging Improvement Team
325th Fighter Wing, Tyndall AFB, Florida

Abstract

I. Organizational Approach

The Sand Dollar Inn guests, who are part of large unit deployments to Tyndall Air Force Base, expect to receive quality customer service as they quickly check-in to clean, pest free rooms. Customer feedback and deployment outbriefs indicated problems with quality assurance, quality results, and customer satisfaction. As a result, on base lodging was not the preferred provider in a process designed to improve readiness and quality of life so the 325th Fighter Wing "Team Tyndall" could accomplish the mission of taking America's Premier Air Superiority Training into the 21st Century. Therefore, the Fighter Wing Commander chartered a process action team (PAT) to improve crew rest opportunities at the Sand Dollar Inn.

II. Execution

The PAT developed flowcharts, bar graphs, Pareto charts and control charts to analyze customer feedback. Color coding the Pareto chart and the cause and effect diagram narrowed the potential root causes to transfer of information among customers, suppliers and all stakeholders; maintenance; pests; and funding for renovations. When we removed the areas for which funding was a major requirement, communication, i.e. the transfer of information among all stakeholders, was identified as the root cause of the remaining problems. The PAT revised deployment notification procedures and the Lodging Group Checklist in addition to internal procedures and training plans. We benchmarked the new process with other military lodging facilities, and a local Marriott, Holiday Inn, and Ramada Inn. As a result of customer debriefings, the PAT determined the Sand Dollar Inn process was preferred by the stakeholders.

III. Results

By changing the way information was requested and provided among the stakeholders, the team projected the savings, based on 25 deployments, could be as much as $1,431,900. The purchase of 2-way radios for housekeeping supervisors (cost $10,000) could save a projected $8,700 annually in supervisor time. This helps to facilitate a faster transfer of information of room status and faster more efficient check-in of lodging guests. Customers outbriefs provide an opportunity to clarify ratings which helps to determine the reliability of the rating and comments. Customer responses facility conditions helps to reinforce building renovation requests. Based on having 50 unserviceable rooms, the potential loss of income is $850 per day. Implementing the continuous improvement efforts resulted in equitable treatment of all Sand Dollar Inn guests, as validated through the increase of customer satisfaction ratings from 4.13 to 4.25 in the 12 months following the implementation of the improvement effort. The color coding of tools turned the team's "lights" on to help our guests turn out the lights for a good night's rest.

The Time Hackers
374th Maintenance Squadron, Yokota Air Base, Japan

Abstract

I. Organization Approach

Those of us working in the 374th Maintenance Squadron Electro-Environmental Element knew there was something wrong. We were taking far too long to complete our Isochronal (Iso) Inspections and our customer made sure we knew it. Weekends were for work, week days went 10-12 hours on a normal basis and we still weren't getting our basic inspections done in time. We finally had enough, and our flight chief and shop chief chartered our shop as a natural working group to find and correct the problems with our inspection process.

II. Execution

We developed our first metric package to track our inspection completion time and found that we were taking an average of 12.2 days, 4.2 days longer than our goal of 8 days. Realizing this, we developed our target for improvement: to complete our inspections in a maximum of eight days to maximize our customer's satisfaction and increase mission readiness. We mapped out our current process using an "as is" flow chart and found many interesting things right away. For instance, of the eight members in our group, we all had different ideas about how we were presently completing inspections; there was a complete lack of continuity in how our inspections should be accomplished. Second, no one was sure exactly what the technical order inspection requirements were. After reaching a general agreement on present procedures and analyzing them, we had four categories of problems: problems with parts and supplies; problems with other maintenance shops; problems with tools and test equipment; and problems with internal personnel and procedures. To make sure we had the right problems in mind, we developed a variety of check sheets to record data and either verify our hypothesis or point us in another direction. Our goal was to define how much time we lost every time we encountered a problem. Over the next five inspections we recorded data and found that our hypothesis was correct. We found that our problems with other shops hindered us the most, followed closely by problems with parts and supplies, then problems with internal personnel and procedures, and finally problems in a small "other" category. In the months that followed we reengineered our entire inspection process; specifically, we trained other shops on requirements, relocated tools and parts to a forward supply point in the Iso hangar, and developed a database to track parts we ordered.

III. Results

Results were outstanding. When all our new procedures were in place approximately one year later, we had a 48% decrease in our inspection time. Our efforts led to the chartering of an overall Isochronal inspection process action team for further continuous improvement. We were able to develop new processes in the shop to better support mission readiness, the quality of our work increased as reflected in quality assurance reports, and morale was greatly increased since we were no longer working overtime. Although we invested hundreds of man hours and a lot of overtime in the development of our revised process, the time we save now makes it all worth it.

Claims Process Improvement Team
377th Air Base Wing, Kirtland Air Force Base, New Mexico

Abstract

I. Organizational Approach

We identified the claims process as needing significant improvement based on a review of several Quality Performance Indicators (QPIs). The process in place was slow and inefficient. The Staff Judge Advocate empowered the team to review all stages of the claims process and immediately implement all changes authorized by law and instruction. Stakeholders, such as claimants, finance and accounting personnel, and representatives of commercial carriers, were contacted for their input. We relied on QPIs and other metric-based measures to evaluate the process. For example, as of July 1996, the average time to process a household goods claim was 27.4 days, more than twice the AF standard of 10 days. The average amount paid per claim was 49.3% of the amount claimed, vice an AF goal of 65%. In addition, the carrier recovery program, by which claims personnel collect money owed to the AF, was not being aggressively pursued. In sum, the process was broken and we sought ways to fix it.

II. Execution

By analyzing all facets of the claims process we identified some clear cause and effect relationships and implemented a number of major improvements. A major problem area was lack of training. We immediately instituted weekly training sessions and located funding for critical training. Revisions to the initial claims briefing and the ready move briefing emphasized ways claimants minimized their liability, while maximizing the amount they could be paid. An audit of our carrier recovery claim files pinpointed documentation shortfalls preventing us from collecting the contractual liability from carriers. Thus identifying exactly what type of detailed documentation was needed to effect recovery. Careful coordination with base contracting and the Air Force Trial Team settled 21 claims against an uncooperative carrier. The claims process was completely streamlined from beginning to end with complete customer involvement. Implementation of direct deposit placed cash in the hands of our customers faster!

III. Results

Our dramatic improvements in claims performance is measured by QPIs, comparing July 1996 with February 1997. The percentage of household good claims processed within 10 days has gone from 60% to 85%! The average time to process a claim has gone from 27.4 days to only 8 days! The amount paid to claimants, as a percentage of amount claimed, has increased from 49% to 65%! The percentage of claims successfully collected or settled against carriers increased from 50% to almost 90%! Claimants are being seen faster. Waiting time for appointments decreased from four weeks to less than 1.5 weeks! Walk-in claimants receive same day service. Over $36,000.00 in upgrades to the claims office peaked the overall outstanding team effort!

Newcomer Immunization Working Group
39th Medical Group, Incirlik AB, Turkey

Abstract

I. Organizational Approach

Recognizing the need for an effective prevention-based program, the 39th Medical Group committed itself to developing a benchmark Putting Prevention Into Practice (PPIP) program. After enlisting full support from the Medical Executive Staff, the Medical Operations Squadron Commander and superintendent dedicated two full-time personnel, office space, and necessary equipment. When looking at the three areas of the PPIP focus: Tests/Screening, Immunizations, and Counseling, many opportunities for improvement were identified. A self directed working group, composed of select members of the PPIP Developmental group, formed the basis for reviewing the immunization process.

II. Execution

The most shocking area of impact related to immunization delinquency rates of newcomers at Incirlik. Initial data showed an incredible 74% delinquency rate! Looking at the source of the problem, we discovered neither losing nor gaining bases had an adequate process to ensure complete or proper immunizations. To tackle this problem we knew we needed to involve our medical group resources, Military Personnel Flight, and MAJCOM counterparts. First, we notified negligent military treatment facilities of our findings and requested their support in correcting the problem. Then we developed a system to screen 100% of the newcomers' immunization records, transcribe the information into their medical records, enter the data into a computer program that we created, and immunize anyone who was delinquent. Medical Group Executive Staff, Wing Staff, MAJCOM Public Health, and PPIP offices were thrilled with the continuous updates on our successes.

III. Results

After 6 months of implementation the results were in. Because of our notifications to MAJCOM Public Health and target bases, the immunization delinquency rate dropped from 74% to 25%. We also identified and corrected a costly error in Hepatitis A vaccination administration at a stateside base. Because of our data tracking system we are the only base in the Air Force with the ability to identify a true tuberculosis conversion rate. When an influenza epidemic closed down our host nation community, our mission remained uncompromised because our airmen were properly vaccinated. Incirlik's PPIP program is recognized Air Force-wide for the impact it has made on the health of its people. This is one step toward reaching our goal of a benchmark PPIP program through innovative healthcare excellence.

WESTOVER ENVIRONMENTAL ACTION TEAM
439TH AIRLIFT WING, WESTOVER ARB, MASSACHUSETTS

Abstract

I. Organizational Approach

The 439th Vehicle Maintenance Section supports the mission of the Logistics Support Squadron Transportation Flight by utilizing the most economical, reliable and up-to-date- procedures possible in order to maintain vehicles and equipment in a safe and serviceable condition. The impact and results of the Vehicle Maintenance Section's key processes directly enable the wing to realize their key processes of : (1) **Development and Maintenance of Human Resources** by 100% compliance of Environmental Protection Agency (EPA) guidelines significantly reducing hazardous waste and (2**) Mission Readiness** by providing a reliable and safe fleet of vehicles. Initially, mid and senior level managers were not involved in the improvement process. In fact, it was a "grass roots natural working group" formed out of concern for shop safety and compliance with changing EPA guidelines that started the team on their mission for change. Although not formally chartered, the team basically took the Wing Commander at his word, and knew if they owned the process, they were empowered to research and act upon proposed changes.

II. Execution

The team used various tools throughout the improvement process to establish the baseline for necessary changes. No singular root cause was selected for improvement, rather a set of causes which reduced shop efficiency, safety, and compliance with EPA requirements were identified and selected. Major projects chosen to be improved were: Shop Modernization, Waste Stream Reduction, Recycling of Waste Oil, Batteries, and Oil Filters, and Aircraft Fuel Recovery. As the various projects came on-line, the team reviewed their thought processes, identified stumbling blocks, re-educated themselves and expanded their knowledge base for future projects. Recognition for the team's efforts were many and varied.

III. Results

Improvements have eliminated over 75% of the base's environmental hazardous waste streams under strict state and federal guidelines. These efforts have resulted in no sanctions imposed upon Westover since implementation. Tangible benefits are readily evident in the form of cost savings and benefits, new equipment, 100% compliance with the EPA and a more efficient, productive, and safer work environment. Intangible benefits are heightened morale and an enhanced culture of empowerment.

Hazardous Material Issue Point Consolidation Natural Working Group
46th Maintenance Squadron, Eglin Air Force Base, Florida

Abstract

I. Organizational Approach

The mission of the hazardous material (HazMat) issue points (IPs) is to ensure maintainers have the necessary materials with which to perform their various levels of aircraft repair, yet still comply with military and civilian environmental regulations and directives. The 46th Maintenance Squadron's maintenance supervision recognized an opportunity to eliminate duplicate materials inventories and to potentially reduce manning. They compared their IP process against the 33d Fighter Wing and found that it had 229 percent of the 33d's manning but handled only 103 percent of the 33d's HazMat inventory. The HazMat IP Consolidation Natural Working Group was then established by maintenance supervision and tasked to identify and solve the logistical issues required to streamline and consolidate the IPs without degrading customer support while still complying with all environmental protection requirements. The team, composed of functional experts from each flight's IP, were thoroughly trained in quality practices. They chose the continuous improvement process model as their format.

II. Execution

The team met weekly and used a variety of problem solving techniques to identify and prioritize major roadblocks and to brainstorm possible solutions. The time between meetings was used to gather data from squadron, base, and other organizations to verify the impact of group-identified problems on the overall processes. Team members represented their respective flights by relaying their customers' expectations and, in turn, took team-derived solutions to their customers for feedback prior to, and after, implementation. Customer feedback indicated that success hinged on the ability of the consolidated IP to deliver materials when and where they were needed on a reliable basis. The team took action to resolve this issue by acquiring a permanent delivery vehicle and rotating delivery driver duties among the using flights every 6 months. The implementation plan was presented to maintenance supervision and the flight chiefs to obtain their buy-in and/or suggested improvements. Once complete buy-in was achieved, the plan was put into action.

III. Results

In just 3 months the HazMat IP Natural Working Group successfully implemented the consolidation of the IPs. The number of IPs was reduced from eight to two; a 75 percent reduction. Dedicated manning was downsized from 16 to 3 for another 81 percent reduction that saved more than $300,000 in annual labor costs to run the HazMat IPs. Quantities of materials on-hand declined 58 percent, from over 4,000 items to 1,665, saving more than $38,000 in inventory expenses. All this was accomplished with an initial investment of only 132 team man-hours and reutilization of existing squadron facilities, vehicles, and equipment. Post-consolidation customer satisfaction metrics are very positive and processes have been standardized through a squadron operating instruction. The team's resounding success has been briefed at all command levels including HQ AFMC for consideration in broader applications.

C-17 Electronic Flight Control System (EFCS) Working Group
637th Aircraft Generation Squadron (AGS), Charleston AFB, South Carolina

Abstract

I. Organizational Approach

The 637 AGS, a group of maintenance (MX) professionals, safely generates reliable C-17 cargo aircraft to support global military airlift requirements. Aircraft must be ready to take off at a moment's notice to support worldwide commitments. Part of the way that this unit monitors its effectiveness is to track departure reliability and mission capable rate. In FQ962, Logistics Analysis discovered there was an increased number of mission delays that were attributable to the failed C-17 EFCS preflight built-in-tests (PFBIT). During a PFBIT, the pilot initiates a flight control check that automatically determines the serviceability of the EFCS. Upon further analysis, Logistics Mgmt conveyed to MX Mgmt through staff meetings, that PFBIT failures were on the rise and were now the leading contributor to mission delays. It became a top priority to study the process and search for ways to reduce mission delays. In Sep 96, MX Supervision commissioned a natural working group on behalf of the 437 Log Gp CC. The working group was comprised of lead MX technicians and a McDonnell Douglas FCS Engineer. The group's objective was to "Identify methods that will reduce mission delays due to FCS PFBIT failures."

II. Execution

This working group left no stone unturned. Their goal was a 25% reduction in the number of EFCS PFBIT delays. They immediately began to investigate all aspects of PFBIT procedures, including technical manuals, software, hardware, equipment, training, and external influences including aircrew and MX inputs. The group studied delay data and constructed a Pareto analysis. The analysis, based on category of failure information, revealed that the greatest number of delays resulted from flyable conditions. The root cause of the problem was the apparent inability of mx personnel and aircrew to interpret EFCS fault code data. The group's consensus was that awareness training would be the best course of action. We surveyed our technicians to fine-tune our action plan. We developed a scenario-training document that realistically depicted situations experienced by personnel when interpreting fault data during "Hot jobs"(Hot jobs occur when discrepancies are discovered within a 2-hour period prior to aircraft launch). This gave our technicians new-found confidence to approach EFCS "Hot jobs."

III. Results

The team results were phenomenal. Delays caused by flyable conditions were virtually eliminated and overall delays caused by EFCS PFBIT were reduced by nearly 50%, doubling their expected gain and exceeding their goal by 100%. As a result, failed EFCS PFBIT is no longer the leading contributor to mission delays. The results are significant from both an organizational and a customer perspective, directly and positively impacting mission effectiveness and satistying customer need for "Safe and reliable aircraft that are capable of on-time departure."

Supplies Acquisition & Delivery Joint Process Action Team
East Coast Contracting Office
65th Air Base Wing, Lajes Field, Azores, Portugal

Abstract

I. Organizational Approach

In May 95, the "Supplies Acquisition and Delivery Process" was identified as an improvement opportunity. A Process Action Team (PAT) has met since then to improve the process. 65 CONS, SUPS, TRANS and FM own the process used to buy and deliver $5 million a year in base supplies. The time when an item is ordered, including acquisition and delivery, on to end-user final receipt took 190 days. Using the "as-is" process, customer needs were not being met. The PAT used the seven continuous improvement process steps in analyzing the process, finding root causes, implementing corrective actions, studying the new "should-be" process results and finally moving into process maintenance. The metric the PAT developed and tested for ACC/ LGC to measure process health is now known as Total Acquisition Lead Time (TALT).

II. Execution

"Peeling back the onion," the PAT analyzed the sub-processes and realized each had an effect on TALT. It identified eight key sub-processes effecting the overall process and developed metrics to measure their health. If key sub-processes were improved, the overall process would get healthy and TALT would decrease. Paramount within this group of eight key sub-processes were delinquent order follow-up, actual award, item description loading, and response to inquiries. By analysis and testing, the sub-processes were brought into control. One idea was to move the supplies acquisition/delivery responsibility from 65 CONS to a 65 CONS operating location stateside. An East Coast Contracting Office (ECCO) would improve the acquisition and delivery process in that ECCO's buyers would have a full eight hours of buying time and be better positioned to address logistical problems. If ECCO was stood-up at McGuire AFB, they would also be in a position to utilize space available military airlift as opposed to slow sea ships.

III. Results

ECCO opened for business in Jan 96. Over the next months, improvement suggestions were tested. Re-work was accomplished as needed, and Operating Instructions were published. The process owners now work in unison understanding theirs and their teammates' roles as well. Load item description time was reduced 90%, from 22 days to 2. Response to inquiries time was reduced 75%, from 8 days to 2. The order delinquency rate dropped from 40 to 6%, and the time to make award dropped 80%, from 30 days to 5. Validation occurred in Nov/Dec 96 when TALT fell to 79 days, down 60% from 190 days. The PAT dramatically improved the time it takes to acquire and deliver supplies to our remote location while successfully implementing and proving the operational capability of Air Combat Command's (and possibly the Air Force's) first CONUS-based one stop "buy and ship" operation supporting an overseas base. NOTE: The PAT and ECCO were identified as a Superior Performance Team by the 1997 Quality Air Force Assessment Team. ECCO was also recognized as a best practice. Over 1,177 work hours per year were eliminated from the process and direct savings from space available mil-air supplies delivery vice contracted sea ship is $200,000. (Capt Alan G. Riba/ DSN 224-5337)

Dyess Express Quality Improvement Team
7th Bomb Wing, Dyess AFB, Texas

Abstract

I. Organizational Approach

The mission of the 7th Logistics Group is "A Motivated Team…Training, Acquiring, Storing, Delivering, and Maintaining…To Provide World-Class Logistics Support for the 7th Bomb Wing and 317th Airlift Group (AMC) missions of Global Engagement." The base repair cycle process is key to supporting the logistics group mission. Transportation and supply (suppliers) provide serviceable parts to aircraft maintenance personnel (internal customers). These parts are used to provide mission capable aircraft for the Wing Commander (external customer) to support the wing's mission and key result areas of Bombing, Airlift Support, Formal Training, and Combat Support. Aircraft availability also impacts the theater combat commander's (external customer) ability to provide power projection by using the 7th Bomb Wing's assets. Based on data trends in the monthly maintenance reports, wing leadership recognized action was required to reduce repair cycle time and cost for the aircraft at Dyess AFB. Improvement in the base-level repair cycle process could directly reduce the cost of maintaining the Dyess fleet.

II. Execution

By reviewing the process flowchart, the team identified that too many technicians in maintenance, supply, and transportation were handling each aircraft part before it was shipped to depot. Redundancy was the root cause for waste in the process. It resulted in an inefficient use of time, manning, and vehicles. The team completed a time and motion study to reengineer the base repair cycle that aided in identifying and eliminating wasted steps in the process. The Logistics Group Commander authorized a 1 month test period for their plan. During the plan execution, the team pretended to be an aircraft part and physically experienced the flow from the time they were processed until they were shipped to depot. Based on the test results, senior leaders decided to permanently implement the Dyess Express.

III. Results

Dyess leadership felt the pain of military cutbacks while "ops tempo" continued to climb. Dyess Express was designed to accommodate the resulting increase in parts flow from maintenance, while reducing processing time, operating costs, and man-days. It consolidated resources and redefined the logistics process by improving vehicle use and reducing man-days required to move aircraft parts. These resources were diverted to other critical tasks to improve combat readiness. This enabled the Dyess logistics community to demonstrate the core competency, Agile Combat Support, which ensured that Dyess aircraft supported theater combat commanders on increasing worldwide deployments. The Dyess Express resulted in a 40 percent reduction in cargo processing time. The process reduced annual miles traveled between work centers by 78 percent. As a result, maintenance costs dropped by 86 percent. Annual man-days expended in the repair cycle process decreased 59 percent. The original process cost $246,991 for parts movement and documentation—the Dyess Express process cost $96,581, for an overall saving of 61 percent each year. The investment for implementing the Dyess Express was recouped within the first 4 months of operation.

Life Support Natural Working Group
80th Flying Training Wing, Sheppard AFB, Texas

Abstract

I. Organizational Approach

The mission of the 80th Life Support element is to "Provide the best life support equipment and survival rescue training to the 80th Flying Training Wing (FTW) to "***graduate the highest quality fighter pilots for the NATO alliance."*** The section is responsible to assemble, custom fit and maintain 671 helmets, oxygen masks, parachutes, and survival kits. In addition, this section trains all flying personnel assigned to the 80 FTW on proper emergency/deployment and use of personal lifesaving equipment. Based on the results from a Unit Self-Assessment, and a higher headquarters staff assistance visit between October 1995 and February 1996, the Squadron Quality Council (SQC) identified that an improvement opportunity exists. Their recommendation was to validate the integrity of every aspect of management and to develop, through training and empowerment, ***the Best Life Support Section for the 80 FTW***, by establishing a natural working group to improve the section. The SQC determined that if life support could not provide or maintain the equipment in operational order, students/instructors would not fly, or even worse, a death could arise in the event of ejection from a damaged or broken aircraft.

II. Execution

In February 1996, the section performed a 100 percent equipment/management review on 4,167 equipment items along with a 100 percent over-the-shoulder task evaluation on each technician's inspection performance. Based on this identification, each problem area was analyzed for a root cause. Out of 46 problem areas, seven common denominators were identified: Inaccurate equipment database, ineffective scheduling of student classes, equipment accountability, no common means of process measurement, insufficient OJT Training, parts accountability and ownership/responsibility.

III. Results

Over 71,000 sorties were flown with zero life support equipment failures. Our mission, ***to graduate the highest quality fighter pilots for the NATO alliance,*** was greatly enhanced by the improvements in the life support section. By streamlining processes by 66 percent; 16 academic man-hours per student were saved, operational maintenance costs were lowered by over 50 percent, and most of all, pride of ownership was placed back into the section. A total of 3,670 man-hours was invested into the life support improvement process. The total cost for all resources was $61,234.60 in wages, with a return of $341,371.98 in savings. When it comes to compliance validation, the AETC QAFA result said it all, "ZERO DEFECTS FOUND!"

Cargo Movement Center
86TRNS, Ramstein AB, GE

Abstract

I. Organizational Approach

The Cargo Movement Center (CMC) is part of the Two Level Maintenance (2LM) and Lean Logistics (LL) pipeline that helps ensure the 86th Airlift Wing (AW) can provide rapid mobility and agile combat support for our forces and quality of life for our people, through a myriad of cargo movements. Since 1992, the CMC team has participated in optimizing the pipeline under 86 AW control. To further reduce the pipeline cycle-time, the CMC also investigated the carrier industry, our suppliers. We found that 2LM/LL was established as a top-down program; it included cycle-time standards for base elements and the carrier industry. Accordingly, the carriers performed to meet these goals. To improve this area and to increase the productivity of wing processes, the CMC team (a natural working group) created and followed a 10-step improvement process.

II. Execution

During June and July of 1996 the CMC invited DHL, Emery, FedEx, and UPS to discuss the improvement of our share of the pipeline and that of the carrier pipeline. From these contacts we identified several possible areas of improvement and began testing solutions. Additionally, we visited several industry leaders to benchmark their packaging processes and organizational structures. After receiving training, the team employed several analysis and problem solving tools to assist in identifying, prioritizing, and implementing potential improvements.

III. Results

By reducing transportation holding time at Ramstein AB, the overall base pipeline cycle-time reduced drastically. Transportation pipeline reduction ranged from 77% to 88% on the highest priority cargo. This directly impacted the overall pipeline cycle-time reduction by over 50%; base pipeline cycle-time from the moment a 2LM part is pulled off an aircraft, to the point when the carrier receives the part is now well below Air Force and wing goals. Discussions with HQ USAF/ILSY indicated that our reduction of over one day in the pipeline, will save the Air Force (AF) approximately $7 million daily if our procedures are implemented AF-wide; that is over $1.7 billion per year! We are submitting several requirements to higher headquarters for improvement of software and procedures to simplify and streamline the process further, and to apply the experience gained to other logistics processes throughout our wing and the Air Force.

Electronic Phase and Boresight
8th Operation Support Squadron, Kunsan AB, Republic of Korea

Abstract

I. Organizational Approach

The mission of the 8th Fighter Wing Wolf Pack is "**To deliver lethal airpower when and where directed by the Air Component Commander."** The Wolf Pack's Electronic Phase Section (EPS) is a Self-Directed Work Team and an innovative approach to calibrating the F-16 weapons system. EPS provides Wing leadership with the means to make this warfighting mission happen. The 8th Operations Group hit the mark when they selected the initial EPS cadre. This team of all-stars hasn't missed a beat yet. That's why the senior staff gives them complete process control. Besides performing the electronic phases, EPS personnel exercise process ownership and are empowered to make continuous updates and improvements. Using their thoughtfully designed weapons delivery calibration processes, EPS turns Wolf Pack aircraft into true "precision" bombers. While doing this, they give Wing aircrews a system they can rely on every time they power up a jet. Imagine 511 F-16s approaching a target. As the air component commander, you know, without a doubt, at least 94 percent of the bombs carried by these jets will hit their targets. This picture is not a dream, this the real McCoy. The Wolf Pack achieved these results during an April 1997 PACAF Combat Employment Readiness Inspection (CERI). Building on a core of superbly competent pilots and maintenance personnel, the electronic phase effort was the one add-on process that changed the balance and made this demonstration of accuracy possible.

II. Execution

The identification analysis that created EPS was based on Core Automated Maintenance System (CAMS) data and aircraft bombing score sheets on file with flying squadron weapons officers. Baseline information was factual and gave an accurate comparison of the "before and after" process. Pilot reported discrepancies were reduced from 266 to just 138. Test equipment and technical resources provided the key to unlocking the results door. Real benefits included extra training time, morale improvement, and a new sense of pride resulting from a 49 percent reduction in workcenter jobs. In real world dollars, the first process change gave the Wing $223,743 in parts replacement cost savings. The next process change increased the bombing accuracy of Wing aircraft. The team researched and found a process already available that could be incorporated into the overall program. Results have been so spectacular that fighter squadrons now compete for the EPS team's attention! Communication between maintainers and operators led to the resolution of long-standing problems. Customers now know the EPS team cares about and can meet their weapons delivery needs.

III. Results

Prior to April 1997, EPS performed electronic phases on 22 aircraft. Their efforts gave the Wing 22 finely tuned aircraft—as confirmed by the CERI. Wolf Pack EPS saved $224,743 on parts and $70,000 on equipment. The PACAF Inspector General's recognition of Kunsan's EPS as a Command wide "Best Practice" confirmed the success of the process and the team. With each new aircraft the process matures and develops, leading to more efficiency and a better product.

Delivery Order Improvement Team (DOIT)
HQ AFCEE/EC, Brooks AFB, Texas

Abstract

I. Organizational Approach

The Air Force cannot carry out its mission without preserving and enhancing our environment. The Air Force Center for Environmental Excellence (AFCEE) seeks to become a national asset by providing quality environmental, planning, design, and construction services and products to its customers in order for them to more effectively carry out their missions. AFCEE's Environmental Conservation and Planning (EC) Directorate customer surveys and personal contacts indicated a growing customer dissatisfaction with the time to get work underway. EC leverages its resources by contracting with consulting firms to provide a majority of its services and products. EC senior management established a Delivery Order Improvement Team (DOIT), with a charter to reduce the time to award work. The team was enabled with a clearly defined tasking and with the authority to gather and analyze data and to implement improvements that would shorten the time to award delivery orders.

II. Execution

The DOIT used the Air Force seven-step continuous improvement process to develop its recommendations. Through the use of cause-and-effect diagramming, histograms, and benchmarking, the DOIT determined root causes and performed analyses of the existing delivery order award process. After identifying the four primary phases of EC's delivery order award process, the team identified the "low-hanging fruit" in three of the four phases and set out to shorten the time needed to issue delivery orders. The DOIT regularly briefed EC senior management on its progress, involved other staff as needed, trained EC staff in the use of recommended improvements, and shared its findings with other Directorates in AFCEE through the use of electronic messaging.

III. Results

As a result of the DOIT's findings and recommendations, EC has reduced the average delivery order processing time from 48.5 days in FY 95 to 29.3 days in FY 97, resulting in a 39.6 percent reduction in processing time. Customer satisfaction, as determined by questionnaires and face-to-face contact, has increased considerably, and the process has resulted in a spin-off of improvements in project cost estimating and delivery order package quality. Through their continued efforts, the DOIT is working to maintain reduced delivery order processing time and continues to look for even further ways to shorten the time for the consultant to begin work for the customer.

Severe Thunderstorm Forecasting Improvement Team
Air Force Global Weather Center
Offutt Air Force Base, Nebraska

Abstract

I. Organizational Approach

Air Force Global Weather Center (AFGWC) is the world's largest centralized weather facility, its mission to enhance our Nation's combat capability with quality weather products. The Severe Weather forecasting section issues the Military Weather Advisory (MWA), a graphical product that outlines areas favorable for the occurrence of severe weather. The thunderstorm forecast development process used at AFGWC has not changed significantly in 20 years. To take advantage of the rapid improvement in workstation platforms and visualization software, AFGWC's Executive Council chartered a Process Action Team (PAT) to develop a strategy for using technological advances to improve the severe thunderstorm forecasting process. The team's primary charter was to improve the process for MWA forecasts. The PAT received 36 hours of dedicated classroom training prior to its start, with the bulk of the instruction covering AFGWC's process improvement model nicknamed "FACE-IT/PACE-IT."

II. Execution

Using FACE-IT/PACE-IT, the severe thunderstorm forecasting process was broken down into its major components. Surveys identified that the aerial coverage and intensity of thunderstorms is their biggest challenge. PAT brainstorming and survey responses determined data assimilation and hardware deficiency were the main causes for an outdated MWA forecasting process. Based on this, the PAT decided to test prototype visualization programs on workstations to allow the forecasters to graphically display weather data. A parallel test was conducted for three weeks in which a team of severe weather forecasters used the new process, independent of the regular process. Verification results showed that by the third week, the test team's forecasts were more accurate than the regular team's. The test team stated the new visualizations allowed them to assimilate more information and saved them time in their process of forecasting thunderstorms. The Air Force Inspection Agency recognized the Severe Thunderstorm Forecasting PAT as a "superior quality team" during Air Weather Service's Quality Air Force Assessment.

III. Results

AFGWC's massive reorganization called "Regionalization", and implementation of new weather product lines with a regional and theater focus to support the warfighter, could not have taken place without the success of the Severe Thunderstorm PAT. The two prototype visualization software programs used in the test have been transitioned into operations and are used round-the-clock by all forecasters. Hundreds of high-resolution visualizations are sent daily to AFGWC's classified and unclassified Internet home pages. These products have been used by the Secretary of Defense and Air Force Chief of Staff. The dissemination of the warfighter product line has solidified AFGWC's position as the Department of Defense's supplier of choice for military weather products and services.

Flying Hour Cost Working Group
HQ AFSOC, Hurlburt Field, FL

Abstract

I. Organizational Approach

In early Nov 1996, HQ AFSOC/FM identified an unusually high Cost Per Flying Hour (CPFH) for the first month of FY97. The total cost of flying was well above our funded line with no obvious "smoking guns." If left unchecked, FM projected we would need $170-$180 million to fly the planned FY97 flying hour program: a $30-$40 million deficit. The Vice Commander of AFSOC chartered a "Tiger Team" to "root out causes and drive down costs." The initial efforts of the Tiger Team evolved into on-going process improvement through the Flying Hour Cost Working Group (FHCWG) and the command level Flying Hour Cost Review Board (FHCRB). The FHCWG consists of members from the headquarters LG, FM, XP, and DO communities. Members were selected because of their expertise and involvement in managing the flying hour program.

II. Execution

The group brainstormed all possible causes of the high costs. Using detailed data from the logistics supply systems and the Pareto Principle, we zeroed in on the true cost drivers. After countless hours of analyzing the data and communicating with our stakeholders (AFSOC Wings/Groups), we found several opportunities for improvement across the command. The team initiated numerous solutions to directly reduce flying hour costs and to communicate the situation to our wings and groups so that they too could initiate cost saving measures. Some of our initiatives were the flying hour review process, standardized cost reporting processes, an OI on the Flying Hour Cost Review Process, monthly newsletters full of lessons learned, and a shared maintenance backshop capability with a unit building its initial operating capability with a new weapon system.

III. Results

After implementing our initiatives, by June, the projection to fly the FY97 flying hour program was $154.5M, a reduction of $15.5M. Although $4M of that reduction was attributable to a Defense Working Capital Fund price reduction, the team's efforts were instrumental in the remaining $11.5M reduction. The cumulative CPFH, which was $3,072 in Jan, decreased to $2,680 by the end of June, a reduction of $392 per hour. One example of the reductions reaped $2.9M in savings. Reviews by the FHCWG in the command identified inoperable test sets at two units as drivers of high Not Reparable This Station rates. The group took actions to get the sets repaired. The repairs restored in-house repair capability which reduced maintenance costs. In another case, we saved $200K by establishing main and rotor blade assembly repair capability locally as opposed to sending them to the higher cost depot for repair.

IMA OPR Team
Headquarters Air Reserve Personnel Center, Denver, Colorado

Abstract

1.0 Organizational Approach. In 1991, the Air Reserve Personnel Center (ARPC) assumed a quality leadership role and became one of the first organizations in the Air Force to take a systematic approach to continuous improvement. Senior leaders believed that ARPC's diversified work processes and many customers, suppliers, and stakeholders could maximize mission capability adopting an organization-wide strategy to begin their quality journey. The first step in this long journey required the ARPC Leadership Team (ALT) to develop a detailed Quality Plan that clearly described the organization's new strategy and infrastructure. Next, the ALT identified the Center's Key Processes (KPs)—the success of which was critical to organizational efficiency and meeting mission objectives. One of the KPs identified was Promotions. A critical factor in the promotion process is a board proceeding that requires up-to-date Officer Selection Folders (OSFs). Thus, the timely receipt of Officer Performance Reports (OPRs) is essential to the success of this process.

2.0 Execution. The challenges surrounding the Individual Mobilization Augmentee (IMA) OPR process required a dedicated, well-trained team that possessed technical expertise in the process. The team's competency ensured the use of proven methods when identifying root causes. The team used promotion board surveys, customer satisfaction surveys, and statistical information to conduct a detailed customer analysis. The team's benchmarking efforts were extremely fruitful in providing information on the latest developments in the tracking of OSF documents. The Air Force Personnel Center's (AFPC's) Field Activities personnel worked hand-in-hand with the team in clarifying active duty Military Personnel Flight responsibilities as they pertained to IMA OPRs. Major restructuring was done to preclude too many hand-offs and a fragmentation of responsibilities. Increased active duty leadership and IMA involvement were essential to any changes that would attack the root causes of the problem.

3.0 Results. Although many challenges existed, the desired outcome can be simply stated—a reduction in the percentage of late IMA OPRs received at ARPC. The documented improvements generated through the efforts of this team have more than met this overriding objective. Promotion Board members are reviewing OSFs that are more complete; hence they can feel confident that the right persons are promoted to the right grades and assigned to the right jobs. IMAs can rely on the contents of those OSFs to correctly reflect their accomplishments as Air Force Reserve officers. The United States Air Force relies heavily on this Reserve resource during times of mobilization and national emergencies. Today more than ever, the Air Force can feel confident that the officers playing such a critical role in the defense of this country have received top-notch personnel support both in peacetime and in wartime. The sustainment of these results has been guaranteed by a host of stakeholders in this important process. Although the tangible benefits to the team's efforts have been documented in detail in this submission, the team cannot overstate the many intangible benefits that will be reaped through a more accurate OSF. The team continues to monitor progress through surveys, conferences, T-Net sessions, and trips to the field. This team has made a sizeable contribution to the United States Air Force.

Fixed Price 2 Team
45th Space Wing, Patrick AFB, Florida

Abstract

I. Organizational Approach.

In 1994, the 45th Space Wing senior leaders began strategic planning and identified their vision and mission. The wing's vision is "to be the world's premier gateway to space," and its mission is to "enhance National strength through assured access to space." Supporting commercial customers who support the DoD mission also supports the Nation's access to space. The wing's senior leaders also identified four strategic challenges, two of which included support to commercial space launch customers. Key result areas included resource management, customer communication, and business practices. Senior leaders identified the wing's key customers as the warfighting CINC, DoD components, NASA, and commercial spacelift launch companies. During customer feedback forums, commercial customers noted that the DoD business processes are very bureaucratic and not user friendly. To fix this problem, a fixed price team was chartered to demonstrate the concept of fixed pricing launches. It succeeded in developing a prototype process that took 9 months to accomplish. In October 1995, the Fixed Price 2 Team was chartered to institutionalize the process. The team's goals were to reduce cycle times to accomplish up to 15 launches per year, reduce launch costs, eliminate billing errors, and bill the customer faster.

II. Execution.

During 20 months and over 100 meetings, the team flowcharted the existing process and identified process improvements. Training included quality techniques and specific cost analysis technical training. The team started many meetings with team-building exercises and they reviewed the 7-step quality process. They received special training on how to conduct efficient meetings, flowcharting, and force field analysis. Senior leaders made special efforts to make team members available to attend meetings and conduct outside research. The team brainstormed and implemented numerous process improvements in the form of streamlining, reinventing, and automating the wing's entire cost estimating process. They improved the cost estimating review process by placing responsibility, visibility, and approval levels at key management points throughout the wing. They used metrics in the form of "hotwashes" of their cost estimates and billing cycles to learn and improve their estimating and billing processes. The team obtained feedback from wing senior leaders and commercial customers and used this information to further refine their work.

III. Results.

The fixed price team succeeded in effecting a culture change in the wing. They made satisfying the customers' desires their primary mission. They reduced the average cost to launch a rocket by 24 percent or over $100 thousand. They completely revamped the wing's entire cost estimating system, that use to produce 100 percent error rates, into a new system that is now accurate within 2 percent. They reduced the billing time from eighteen months to less than one month and eliminated the detail and the errors it caused. The commercial customers played a major role in helping to implement process improvements and they now get faster, better, and cheaper launch services. They are elated! "We are extremely pleased with the fixed-price system," said a spokesperson from McDonnell Douglas Aerospace Corporation in the *Florida Today* newspaper.